

THE EFFECT OF INTERMITTENT HYPOXIC TRAINING (IHT) ON HAEMATOLOGICAL VALUES, AEROBIC CAPACITY AND PERFORMANCE IN RACING THOROUGHBREDS

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The use of altitude training to optimize athletic performance has been well documented in the human and to a lesser degree in the horse. The major drawbacks with training equine athletes at altitude are the relatively inclement conditions horses must live in and also the lack of proximity to major racing centres.

The critical concept in intermittent hypoxic training is that respiratory restrictions may be the limiting factor in performance. As hypoxia is an important respiratory drive, then respiratory training can be achieved without exercise.

In recent years the use of induced hypoxia at sea level has become a practical alternative to altitude training. This can be achieved by administering a hypoxic gas mix to the horse daily via an oro-nasal mask. The aim of this study was to use this technique in combination with traditional training to assess effects on hematological values, aerobic capacity and performance.

Eight Thoroughbred horses in full training were assigned to IHT for a period of 2-5 weeks. Base line hematological values were taken prior to the start of training, and then again after completion of IHT training. An exercise test was performed prior to and at the end of hypoxic training. All horses acted as their own control. Seven of the eight experimental horses went on to race (one horse was excluded due to a hoof injury). Performance was assessed using race results from race day starts.

After hypoxic training a significant ($p < 0.05$) increase in PCV, Hb concentration and MCV was observed. A significant ($p < 0.05$) decrease in lactate production was also shown. Race performance after hypoxic training was significantly improved from the previous season, and was significantly higher than for the following season (without hypoxic training). Winners 1/7 previous season, 5/7 after hypoxic training, 1/7 the following season. Percentage wins to starts 6.9%, 26.7%, and 5% respectively.

All horses raced significantly better than they had previously.

We conclude that the use of IHT in combination with traditional training techniques can increase aerobic capacity and may therefore serve to optimize athletic performance.